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RECORD

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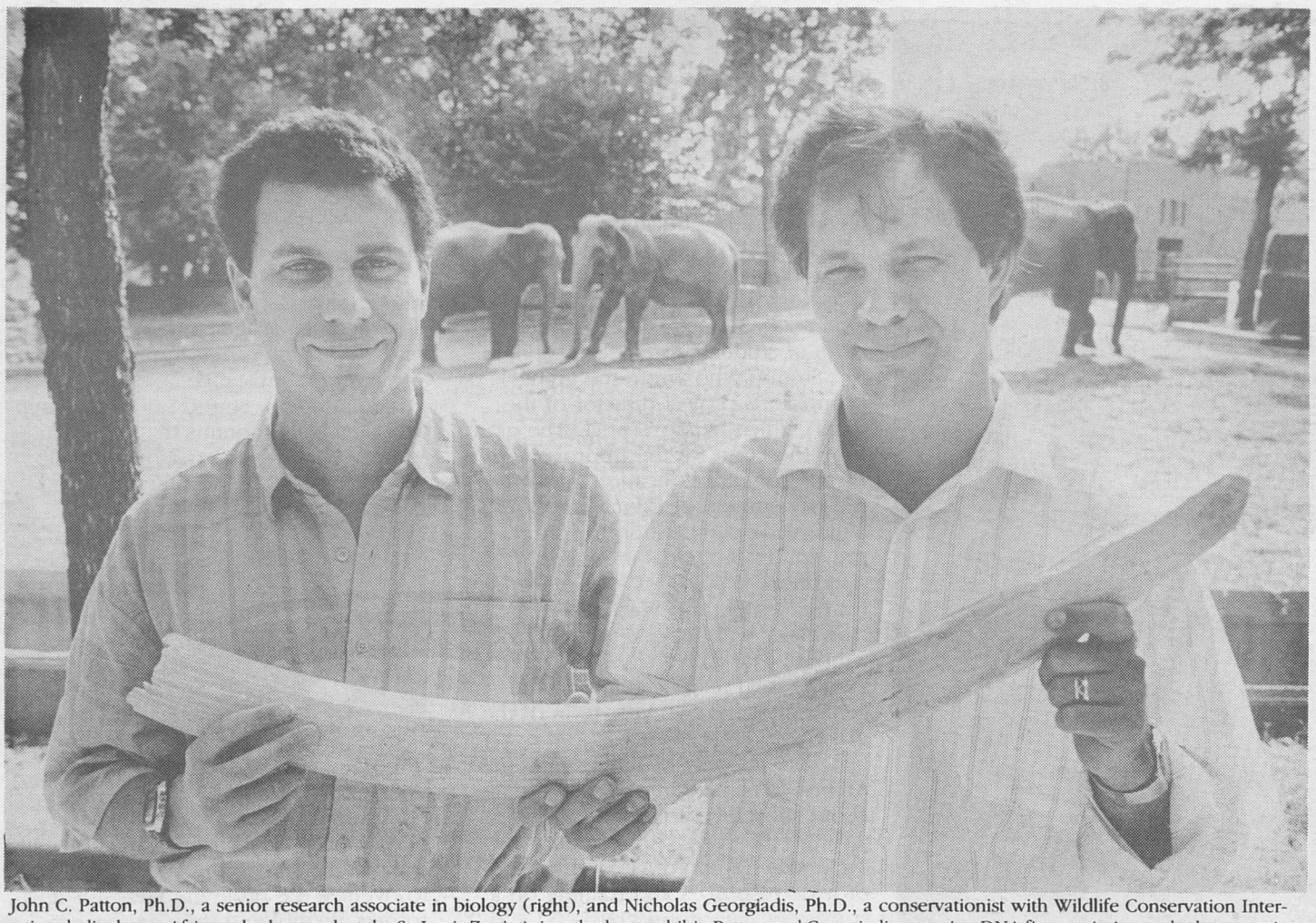
Vol. 14 No. 6/Oct. 5, 1989



John C. Patton, Ph.D., a senior research associate in biology (right), and Nicholas Georgiadis, Ph.D., a conservationist with Wildlife Conservation International, display an African elephant tusk at the St. Louis Zoo's Asian elephant exhibit. Patton and Georgiadis are using DNA fingerprinting and other genetic sleuthing techniques to help halt the species-threatening practice of ivory poaching in Africa. Their work is the first attempt anywhere to develop a genetic database of tusks confiscated by African authorities.

Forensic tool

Stamping out elephant poachers with DNA fingerprinting

A scientist at Washington University is bringing the burgeoning technology of DNA fingerprinting and other genetic sleuthing techniques to the species-threatening practice of ivory poaching in Africa.

John C. Patton, Ph.D., a senior research associate in biology, is the first scientist to begin developing a genetic database of tusks confiscated by African authorities. His study is funded by a grant from Wildlife Conservation International, a division of the New York Zoological Society.

From the tusks, Patton will isolate samples of DNA, the genetic material in all cells that is often called the "blueprint of life." He will search the DNA for chromosomal clues, or fingerprints, that may reveal genetic variation among elephants from regions in Africa. He also will look at mitochondrial DNA, found outside the nucleus, and the Y chromosome, both sex-related markers that, along with fingerprinting, will provide a genetic profile of the elephants.

Eventually, the scientist hopes to pinpoint the type of elephant the tusks came from as well as the location on the continent of that elephant type. Authorities then can begin tracking the paper trail that will help them halt the trade in illegal ivory.

New forensic tool

"I envision this effort developing into a forensic tool that can help halt the black market trade of ivory, as well as aid scientists in getting a better handle on genetic variation among elephant species and subspecies," says Patton, a specialist in evolutionary and conservation genetics. "Species survival programs in the nation's zoos, for instance, often attempt to breed animals that look alike but are not genetic 'matches'— they may be too closely related on the one hand or genetically incompatible, on the other. In the case of elephants, DNA fingerprinting may help us propagate a species that is suffering a needless slaughter in Africa as well as Asia."

Through proper genetic "matchmaking" and other techniques, Patton and colleague Alan Templeton, Ph.D., professor of biology at Washington University, have been instrumental in researching ways to proliferate the red wolf, a native of North America, and the Speke's gazelle, which resides mainly in North Africa. In his elephant genetics work, Patton is assisted by Nicholas Georgiadis, Ph.D., a conservationist with Wildlife Conservation International, and Linda Park, a Washington University graduate student in biology.

According to Oliver Ryder, Ph.D., geneticist at the Center for Reproduction of Endangered Species at the San Diego Zoo, Patton's efforts can become "a major, exciting contribution to wildlife management. It will make wildlife management of threatened and endangered species more similar to management in zoos by identifying appropriate mates for animals."

Grim situation

The situation throughout much of Africa is becoming grimly familiar: The corpse of an elephant lying mountainously mute, its tusks carved out of its skull to fetch a compelling price on the black market. The animal's carcass is left to rot.

According to Kenyan officials, elephant herds there have been reduced from 65,000 in 1979 to 17,000 today. The situation has become so dire that it moved Kenya's President Daniel arap Moi to burn 12 tons of elephant tusks in a July 18 ceremony devised as a plea to the world to ban the ivory trade. The 20-foot heap of ivory would fetch approximately $3 million on the open market, according to a New York Times report. And officials say the amount of tusks burned — which conservation officials gathered from elephants poachers had shot but left behind — is only a fraction of what is being harvested or wasted each year. Among the first samples Patton is examining are tissues from the Kenyan tusks burned in the demonstration.

Tracking down ivory poachers has long been the bailiwick of African game wardens and the local police, whose sleuthing techniques are timeworn and often inconclusive. But Patton's use of genetic profiles, once his database is complete, will provide an analysis of tusk types that will be highly accurate, enhancing efforts to track down the culprits.

"There's a big difference between searching the Empire State Building and just one room in the Empire State Building," Patton says. "We hope our genetic profiles will give authorities and scientists alike that one room."

DNA fingerprinting results are becoming increasingly common as forensic evidence in criminal cases. Any human remains — drops of blood, semen or shreds of hair — contain DNA and yield self-incriminating evidence that is far more tell-tale than fingerprints. Since its availability on a large-scale basis about two years ago, the tool has been used in approximately 90 American and 50 British criminal cases, according to a June 24, 1989, article in The Economist. It has been used to help settle thousands of paternity suits, and in Great Britain to determine eligibility for immigration. Both countries are developing computer programs that will run national genetic databases.

Weaving through the maze

In genetic fingerprinting, scientists identify segments of DNA (deoxyribonucleic acid) that make up a sizable fraction of the one-thousandth portion of DNA that makes an individual unique.

The trick to finding the unique part of the genetic code through genetic fingerprinting techniques lies in determining portions of the code that are consistently and idiosyncratically repetitious. Geneticists often use restriction enzymes that "recognize" this part of the code; to sort pieces of DNA, they use a technique called gel electrophoresis, which resembles a

Continued on p. 3

Author John Barth to read his work

Renowned author John Barth will read from his current works at 4 p.m. Monday, Oct. 9, in Brown Hall Lounge.

The reading, co-sponsored by the Department of English and the Assembly Series, is free and open to the public.

"John Barth is a master of the modern epic, and a great natural storyteller, even though he doesn't tell every story naturally," says author William H. Gass, Ph.D., David May Distinguished University Professor in the Humanities. "He is a comic genius. Put epic and comic together and you get the Mock Epic, which is one of our fundamental modern modes."

Barth received the National Book Award in 1973 for the three novellas in his book *Chimera.* He is known for his exploration of the relationship between language and reality and for his experimentation with fictional forms. He has said that *Life in the Funhouse,* a 1968 collection of short stories, was "written for voice and tape recorder." In the 1979 novel *Letters,* Barth reuses characters from his previous fiction in a playful parody of the epistolary novel form. His most recent book is *Tide Water Tales: A Novel,* published in 1987.

Barth's other novels include *The Floating Opera* (1956), *The End of the Road* (1958), *The Sot-Weed Factor* (1960), *Giles Goat-Boy* (1966), and *Sabbatical: A Romance* (1982). In 1984 he published *The Friday Book: Essays and Other Nonfiction.*

For more information, call 889-5116.

Dance conference will feature two night performances

The Mid-America Dance Network (MADN) will hold its 10th anniversary conference, titled "Looking Back and Dancing On," in the Mallinckrodt Center from Oct. 13-15. The Performing Arts Department is co-sponsoring the conference.

The conference, which is open to the public, will feature two showcase performances at 8 p.m. Oct. 13 and 14 in Edison Theatre. Katherine Dunham, creator of the Dunham Technique, and Todd Bolender, artistic director of the State Ballet of Missouri, will be honored guests.

Both evening performances will feature different regional dance companies, ranging from large state ballets to smaller and younger local dance groups. Every performer was selected in juried competitions held by each participating state. Those states are Arkansas, Kansas, Missouri, Nebraska and Oklahoma.

The Friday performance will include Burning Feet Dance, the State Ballet of Missouri, and Christine Graham Alberts of Washington University.

Burning Feet was founded in 1979 by Suzanne Grace. Grace has performed extensively in the Midwest and has taught dance at Washington University, Webster University and William Woods College. The State Ballet is Kansas City's only year-round professional ballet organization. Artistic director Bolender, who also will be teaching a master class, is an internationally known dancer and choreographer. Alberts is currently on the Washington faculty. In addition to choreographing, Alberts also heads

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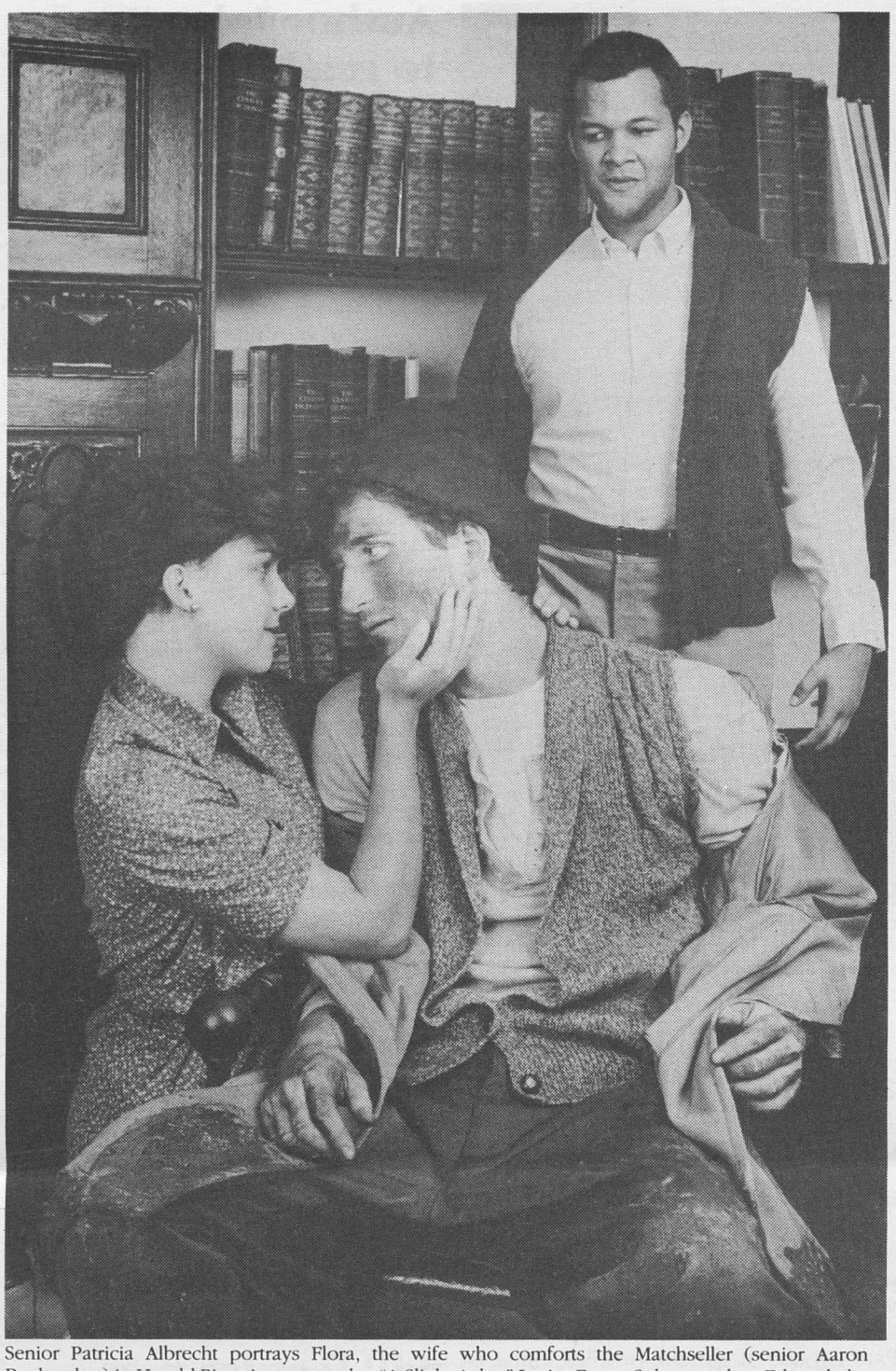

Senior Patricia Albrecht portrays Flora, the wife who comforts the Matchseller (senior Aaron Buckwalter) in Harold Pinter's one-act play "A Slight Ache." Junior Foster Solomon plays Edward, the jealous husband. The Performing Arts Department production will be staged Oct. 5, 6 and 7 at 8 p.m. and at 2 and 8 p.m. Oct. 8 in the Drama Studio, Room 208, in Mallinckrodt Center.

Harold Pinter's 'A Slight Ache' will be staged in Drama Studio

The Performing Arts Department will present "A Slight Ache," a one-act play by Harold Pinter, Thursday, Friday and Saturday, Oct. 5, 6, and 7, at 8 p.m. and at 2 and 8 p.m. Sunday, Oct. 8, in the Drama Studio, Room 208, in Mallinckrodt Center.

The three-character play will be directed by Christopher Sanders, a student in the Master's in Drama program. Sanders made his Washington University directing debut last year with "The American Dream," by Edward Albee.

"A Slight Ache," one of Pinter's early plays, was written in 1958 and first performed the following year. The play revolves around the Matchseller, whose silent presence serves as a foil for the husband and wife who have a cold and loveless marriage. Their reactions to the Matchseller reveal their own feelings and perceptions about themselves and their marriage.

The Matchseller will be played by senior Aaron Buckwalter, who appeared on stage in last year's University productions of "The American Dream" and "A Midsummer Night's Dream." Flora, the wife, is played by senior Patricia Albrecht, whose Performing Arts Department performances include the female lead, Jill, in "Equus" last year. Edward, the husband, will be played by junior Foster Solomon, who appeared as Oberon, king of the fairies, in last year's mainstage production of "A Midsummer Night's Dream."

Tickets to the performance are $3 for the general public; $2 for students, senior citizens and Washington faculty and staff.

For more information, call 889-6543.

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Grant provides start-up funding

Chemical abuse prevention center established; coordinator named

A two-year grant of $92,166 from the Department of Education will help to establish the Center for Chemical Abuse Prevention and Education at Washington University, according to Donald A. Strano, Ed.D., assistant dean of students for special services.

Strano, who wrote the grant proposal, is project director of the grant, which began Sept. 1. The grant, from the Fund for the Improvement of Post Secondary Education, is part of the Department of Education's annual nationwide competition for drug prevention programs in higher education. It provides start-up funding for the center, and Washington University will provide supplemental support. The University has agreed to assume total responsibility for the center after the two-year term of the grant.

"The majority of offices in Student Affairs do some sort of programming about substance abuse some time through the year," Strano said. "But, there was no coordinated effort to provide resources and training on a consistent, year-round basis.

"Hopefully, a lot of what we will do will support these offices and help them to be more effective."

Strano said he gathered a variety of information for the grant proposal from the Alcohol Education Task Force, which was established last year by Harry E. Kisker, dean of student affairs, to examine alcohol issues on campus.

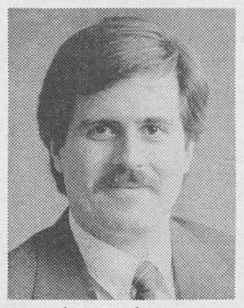
"The grant proposal was developed independently of the task force," Strano said, "but many of the programs that were suggested by the task force are being implemented by the center."

The center will have three major goals, Strano said. First, it will provide ongoing educational information to the campus community through posters, notices in Student Life, public service announcements on campus-based radio station KWUR, newsletters and information tables.

Center personnel also will train student leaders as peer educators, and assist them in holding drug and alcohol abuse workshops and presentations.

The center also will provide a multimedia resource library for use by any member of the campus community who is interested in presenting a program on substance abuse.

In addition, Strano said the center will develop programs that focus on personal development issues. "We want to provide workshops and other resources that are geared toward improving self-esteem, values and assertiveness, which are often considered an important part of drug and alcohol abuse prevention."



Daniel R. Herbst

Strano said Daniel R. Herbst has been employed as a full-time substance abuse prevention coordinator to oversee the program. Herbst is a former alcohol and drug awareness program counselor at Southern Illinois University at Edwardsville and a certified substance abuse counselor in the state of Illinois.

"I am excited to have someone of Dan's caliber, who has a thorough background in substance abuse prevention, to head up this very important effort for the University," Strano said.

Herbst, who has a bachelor's degree in business administration and a master's degree in counselor education from Illinois State-Normal in 1978 and 1981, respectively, began his position Sept. 18.

The Office of Student Affairs is now searching for a location for the center, which Strano said should be fully operational by January 1990. Many programs will be planned throughout fall semester, Strano said, including activities for National Collegiate Alcohol Awareness Week, Oct. 15-21.

Maritz Travel replaces Apex here

Maritz Travel opened its doors Aug. 14 at its new branch office in Mallinckrodt Center, replacing Apex Travel as the University's on-campus travel agency.

Joe F. Evans, associate vice chancellor for business affairs, said the change was due in part to the lack of University business generated by Apex. "They weren't able to secure a large enough share of total University business," Evans said. "The idea of having an agency on campus was to have most of the University departments going through that agency."

Departments using the services of the on-campus agency receive travel rebates, Evans said. "So the University was losing money for every trip that was booked outside of Apex. We feel Maritz can capture more of that business."

Maritz has access to all major airlines' reservations systems, giving them the ability to get the lowest possible fares and first choice on availability of flights, Evans said, while Apex only had access to Trans World Airlines' reservation system.

There also was a problem with Apex submitting insufficient and incorrect travel management reports, Evans said.

Brandi Harris, manager of Maritz' campus branch, said 3 percent travel rebates will be given to departments for all travel, whether business or personal, that is booked through the agency.

Maritz also offers a wide-range of other services for faculty, staff and students, she said, including fully staffed international travel and vacation packages departments. Those departments, located at Maritz' main location in Lackland Hills, are readily accessible to the University branch.

In addition to Harris, four reservationists and one ticket processor/delivery person are employed at the Washington location.

NOTABLES

Daniel R. Mandelker, J.S.D., Howard A. Stamper Professor of Law, was cited by the U.S. Supreme Court in its recent decision in the case of Marsh v. Methow Valley Citizens Council. The court cited Mandelker's book *NEPA Law and Litigation* to hold that federal agencies must discuss mitigation for the environmental impacts of their projects in environmental impact statements required by the National Environmental Policy Act. In addition, Mandelker lectured on problems of hazardous waste management at an international conference on the environment held in Jerusalem.

Paul S. Meyer, D.D.S., associate professor of clinical orthodontics, received the Distinguished Alumnus Award from the orthodontic department for his 31 years of dedicated teaching. The award was presented at the annual dinner of Washington University Alumnae of Orthodontics, held at the Hyatt Hotel, by Frank Miller, president of the organization and one of Meyer's ex-students.

Bernard D. Reams Jr., J.D., Ph.D., professor of law and director of the law library, is author of a new book, *Insider Trading and the Law: A Legislative History of the Insider Trading Sanctions Act of 1984*, which recently was published by William S. Hein and Co. Inc. of Buffalo, N.Y. His article on "Internal Audits in the Academic Law Library" appeared in the Law Library Journal.

Gruia-Catalin Roman, Ph.D., associate professor of computer science, presented a paper, titled "A Shared Dataspace Model of Concurrency-Language and Programming Implications," at the 9th International Conference on Distributed Computing Systems, held in Newport Beach, Calif. He co-authored the paper with **H.C. Cunningham,** a graduate student in the computer science department. Roman also chaired a conference session on distributed algorithms.

Roy D. Simon Jr., J.D., professor of law, published an article in the Yale Law Journal, Vol. 98, titled "Fee Sharing Between Lawyers and Public Interest Groups." He also published an article in the spring 1989 issue of Business and Society Review titled "Lawsuit Syndication: Buying Stock in Justice."

Margaret W. Skinner, Ph.D., assistant professor and director of audiology in the Department of Otolaryngology-Head and Neck Surgery, was the keynote speaker at the New Zealand Audiological Society meeting in Auckland, New Zealand. Her lectures were titled "Relation Between Preoperative Electrical Stimulation and Post-operative Speech Recognition Performance With a Cochlear Implant," "Synergistic Effect of a Hearing Aid and a Cochlear Implant on Speech Recognition" and "Factors to Consider in Prescribing Real Ear Gain With Conventional and Digital Hearing Aids," a lecture she also delivered at the 14th annual conference of the Canadian Association of Speech-Language Pathologists and Audiologists, held in Toronto.

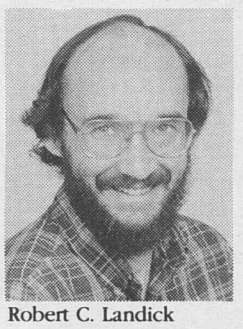
Have you done something noteworthy?

Have you: Presented a paper? Won an award? Been named to a committee or elected an officer of a professional organization?
The Washington University Record will help spread the good news. Contributions regarding faculty and staff scholarly or professional activities are gladly accepted and encouraged. Send a brief note with your full name, highest-earned degree, current title and department along with a description of your noteworthy activity to Notables, Campus Box 1070, or by electronic mail to p72245SS at WUVMC. Please include a phone number.

Biologist Robert Landick receives NSF's young investigator award

Robert C. Landick, Ph.D., assistant professor and Mallinckrodt Fellow in the departments of biology and biological chemistry at Washington University, is one of 197 academic scientists and engineers to receive the National Science Foundation's Presidential Young Investigator award.

Landick is eligible for up to $100,000 per year for five years in a combination of federal and matching funds. The awards fund research by faculty near the beginning of their careers to help universities attract and retain outstanding young Ph.D. scientists who are committed to teaching careers as well as research.


Robert C. Landick

The awards, which were first announced in 1983, represent a partnership among private industry, the federal government, the investigators and their academic institutions. Each grant consists of annual base funding of $25,000 from the NSF, plus an additional amount of up to $37,500 in matching funds from NSF and the private sector.

Landick was selected based on an evaluation of his ability and potential as a researcher and a teacher who could contribute to the future vitality of U.S. scientific and engineering efforts. A panel of outstanding scientists and engineers from throughout the U.S. advise the NSF on the selection of award recipients.

Landick's research interests involve the isolation and structural analysis of actively transcribing RNA polymerase molecules. His basic research in molecular biology is aimed at further clarifying how DNA is transcribed into RNA, bearing important implications for genetic engineering and biomedical research.

Prior to his appointment at Washington in 1986, Landick was a National Institutes of Health postdoctoral fellow at Stanford University. He also was one of 18 individuals in the country to be named a Searle Scholar for 1987, receiving a $180,000 grant to support his research for a three-year period.

Landick, who is co-founder and editor since 1980 of the journal DNA and Protein Techniques, was an invited speaker at the April 1989 meeting of the Society for General Microbiology in Cambridge, England, where he presented his methods for teaching molecular genetics. He recently returned to England as an invited speaker at a meeting on RNA 3' End Formation at Oxford.

Landick received his bachelor's degree in chemistry and his doctorate in biological chemistry from the University of Michigan in 1975 and 1983, respectively.

DNA fingerprinting — *continued from p. 1*

miniature football field and uses electricity to separate the pieces according to size. Radioactive isotopes act as markers signalling the unique fragments. A finished genetic code looks remarkably like the bar-codes of products that computerized registers "read" at the check-out line in supermarkets and chain stores.

To help recover information from samples containing very small amounts of elephant DNA or from badly decomposed samples, Patton plans to use a technique called "polymerase chain reaction" (PCR), a novel alternative to traditional cloning techniques that allows him to amplify in three hours up to 40 samples of DNA. In contrast, it would take him up to three weeks to process one sample of DNA with traditional cloning methods. This technique has been used to amplify DNA's from 7,000-year-old tissue samples from Egyptian mummies and brain tissues of bog-preserved American Indians.

With these techniques in hand, the scientist must develop a system that delineates the source of ivory by matching the sample's genetic point of origin. African countries set quotas on the number of elephant tusks allowed for sale or export. In some countries, hunting elephants is entirely illegal. Yet clever dealers get around these often lax rules by selling through another country (often by finding officials willing to falsify papers), or by working stealthily through the black market.

"Some countries become conduits for poached ivory," Patton says. "They may export more tusks per year than they have elephants; or, in some cases, they may have no elephants but still have an export quota. The situation is worse in central and north Africa than in South Africa or Zimbabwe, where the herds are protected better. The paper trail is dirty; authorities can point to their books and say they are falling within the quota, yet ivory is still smuggled through their ports. We're just trying to make it easier to say where the elephants come from so authorities can backtrack and find out where the illegal ivory is coming from."

The tusk itself poses a major challenge to Patton's task.

"DNA is more readily found in blood, muscle, bones and tissue," Patton says. "A tusk is little more than a tooth whacked out of an elephant's skull. Teeth are not the ideal for extracting DNA because they are formed by layers of cells in the pulp cavity, but the tooth itself is essentially acellular. Once the sample dries up and ages, the DNA is not nearly as accessible as what you can get from blood or tissue."

Patton notes, however, that scientists have extracted DNA from 13,000-year-old mummified skins that were badly degraded.

The scientist hopes his effort will contribute to the increased awareness of the profound impact poaching and the ivory trade is having not only in Africa but throughout the world.

"We must make people aware that poachers are not only wiping out a species of mammals, but also needlessly ruining the habitats of wildlife. By endangering the elephant's survival, poachers are damaging their own economy because tourism is a vital force in many African countries. If you remove one species from a park, you destroy a true habitat. The ecological system is never the same again."

Tony Fitzpatrick

National Geographic rerun

Lewises' rain forest research is cable program's lead story

Two Washington University scientists researching the medical botany and culture of Peruvian Indians are the focus of a National Geographic "EXPLORER" feature, "The Secrets of the Rain Forest," that will air again at 8 p.m. (CST) Oct. 8 on WTBS, a cable TV station.

A December 1988 Peruvian expedition by Walter H. Lewis, Ph.D., professor of biology, and his wife, Memory Elvin-Lewis, Ph.D., professor of biomedicine at the School of Dental Medicine, is the lead story of the two-hour program that also will be shown at 11:05 p.m. (CST) Oct. 9 and at 7:05 a.m. (CST) Oct. 14. The show first aired on WTBS last spring.

During the 1980s, the Lewises made several journeys to the tropical forests of Peru to collect plant specimens and observe the cultural traits of the Jivaro Indians.

The program will feature stunning scenes of the tropics as well as portraits of the Jivaro and their culture and the Lewises' treks in the forest as they search for valuable plants.

NEWSMAKERS

Washington University faculty and staff make news around the globe. Following is a digest of media coverage they have received during recent weeks for their scholarly activities, research and general expertise.

The United States economy is turning toward a recession in 1990, predicts Murray Weidenbaum, Ph.D., director of the Center for the Study of American Business. He points to higher inflation and slower growth, saying "such a slowdown is often a prelude to recession." Weidenbaum's comments appeared in the July 16 *Detroit News*.

As a result of deforestation, 60 percent of Third World women who still cook on open fires, spend one day a week seeking cooking fuel. Eugene B. Shultz, Ph.D., professor of engineering and applied science, and Wayne G. Bragg, Ph.D., affiliate professor of technology and international development, found that the roots of the common gourd provide an excellent cooking fuel. Women in three countries tested the fuel and declared it highly satisfactory. Gourd plants thrive in otherwise unusable soil and help prevent erosion. Dried gourd roots make a fuel that burns as well as wood, and using them for cooking saves any trees that may be left. The story appeared in the Aug. 7 *Washington Post* and the Aug. 11 *Washington Times*.

MEDICAL RECORD

Alzheimer's may be in brain years before symptoms appear

Even a slight decline in everyday functioning due to mental changes may be a sign of early Alzheimer's disease, say researchers at the School of Medicine. Although occasional memory lapses often are perfectly acceptable for elderly people, more widespread change — even when subtle — is not necessarily an inevitable result of the normal aging process.

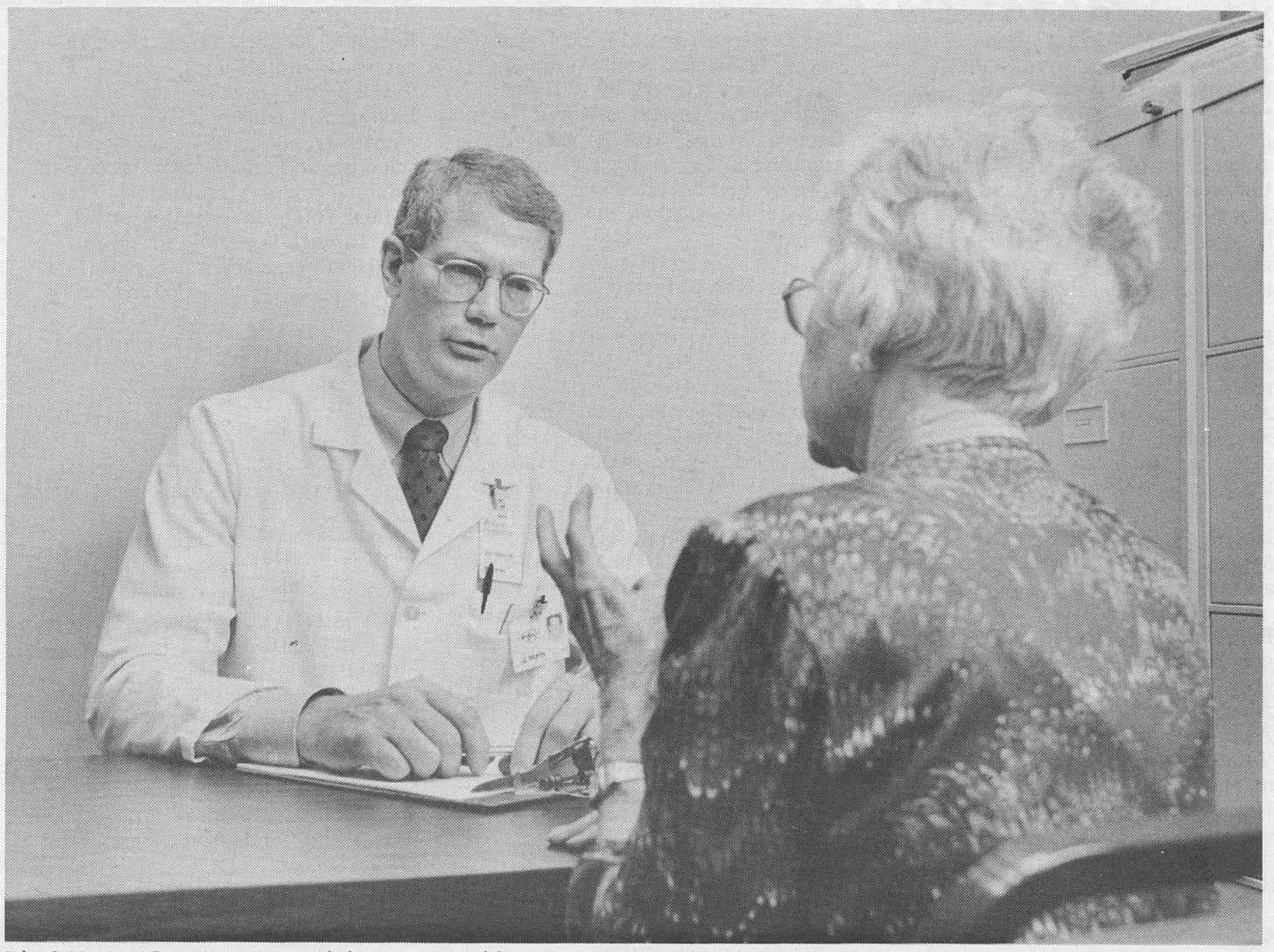
Preliminary studies conducted at the School of Medicine have revealed autopsy evidence of fully developed Alzheimer's disease in the brains of four elderly patients who died within a year of becoming only questionably demented, while no sign of the illness was found in the brains of three elderly control subjects who were clearly normal and undemented.

"This may mean that Alzheimer's disease is present in the brain for years before clinically measurable symptoms show up," says John C. Morris, M.D., an assistant professor of neurology at the School of Medicine.

"Therefore, minor mental deterioration that often is chalked up to old age actually may be a warning signal of Alzheimer's disease," adds Morris, an investigator with the University's Alzheimer's Disease Research Center and the associate director of its Memory and Aging Project, a long-term study of intellectual function in older adults.

"These findings also underscore the need to refine the diagnostic tools that are used to detect Alzheimer's — tools which, while extremely effective at detecting advanced stages of the disease, may be less sensitive when it comes to pinpointing early dementia. And early detection is vital because, although there is no effective treatment for Alzheimer's disease at the present time, theoretically treatment would be most beneficial during the initial stages of the disease."

Until recently, it has been commonly accepted that the tangled nerve cell fibers and deposits of degenerated nerve cell endings found in the brains of Alzheimer's patients could also occur in lesser amounts in healthy, non-demented individuals — in other words, that a certain amount of brain damage occurs during the course of the normal aging process. Thus, a certain amount of forgetfulness and disorientation has been tolerated as part of the aging process.



John C. Morris, M.D., an investigator with the University's Alzheimer's Disease Research Center and the associate director of its Memory and Aging Project, talks to a volunteer research participant. Minor mental deterioration, Morris says, is not necessarily a normal part of the aging process, but may be a signal of Alzheimer's disease. Preliminary studies have revealed evidence of fully developed Alzheimer's in the brains of elderly patients who died within a year of becoming only questionably demented.

". . . We believe that Alzheimer's disease is not an inevitable part of aging."

— John C. Morris

That may not be true, says Morris. "Although only a few brains from control subjects have been studied, the available evidence suggests that it's possible to live to a very old age with no sign of Alzheimer's disease," he says. "That is, there *are* differences between the normal aging process and senile dementia of the Alzheimer's type (SDAT). Thus, we believe that Alzheimer's disease is not an inevitable part of aging."

It's important to understand the differences between the normal aging process and Alzheimer's disease, Morris comments. Because many diseases or conditions in older adults, including Parkinson's disease, stroke, depression and overmedication, can cause symptoms in older adults similar to those caused by SDAT, it is necessary to distinguish these illnesses from SDAT.

"SDAT may be overlooked or incorrectly diagnosed as much as 40 percent of the time," says Morris. "Misdiagnosis not only may prevent people from getting the treatment they need for other conditions, but also frustrates the efforts of researchers who think they are gathering information on Alzheimer's disease but are actually observing another disease."

Beyond problems with diagnosis, he adds, it's important that investigators learn where normal aging ends and SDAT begins. "What is it that causes some people to remain vital while others develop SDAT?" asks Morris. The answer to that question, he believes, may be a key to preventing the disease.

With that in mind, the Memory and Aging Project and similar programs elsewhere in the country recruit elderly people for research. Volunteers are scored according to a set of uniform criteria developed by a research team at Washington University led by Leonard Berg, M.D., professor of neurology and director of the Alzheimer's Disease Research Center and the Memory and Aging Project. Patients are rated as questionably demented when mild intellectual loss is suspected but cannot be definitely diagnosed.

Such was the case with four elderly patients who enrolled in the project at different times between 1978 and 1989 but died within a year of their evaluation. Before their deaths the patients, who ranged in age from 75 to 86 years old, had done so well on psychological tests measuring intellectual ability that doctors disagreed on the diagnoses: were the occasional memory lapses reported by close family members normal for their ages, or were they symptoms of very mild SDAT?

"Although their test perfromances might suggest that the patients were not demented, their relatives would tell us, `He keeps forgetting to pay the bills and he's never done that before,' or `Lately, Mom forgets where she's parked the car,'" Morris says.

"Looking at the same information, one doctor would comment, `Well, I realize this person is slightly forgetful, but his test scores are fine. Besides, he's 85 years old and occasional memory lapses are perfectly normal at that age.' But a second clinician would question whether those lapses were normal or not."

The doctors compromised by diagnosing questionable dementia, but — as with all suspected cases of Alzheimer's — the diagnosis could only be confirmed upon autopsy.

When post-mortem examination revealed that widespread pathological disease was already present in the brain when there was only very subtle decline in intellectual function, Morris and his colleagues knew it was time to take another look at their diagnostic methods.

"To zero in on the very mild stages of SDAT, the point at which the patient probably would be most responsive to treatment, we need to improve our testing methods," says Morris.

"Most importantly, we need to keep listening to the spouses and other family members of the elderly who observe them daily and know them well. And — since these findings indicate that extensive brain damage often exists by the time symptoms of SDAT appear — we need to be especially vigilant in searching for a way to prevent Alzheimer's disease from occurring in the first place."

In addition to Morris, and Berg, a number of Alzheimer's Disease Research Center investigators are involved in this effort, including Eugene Rubin, M.D., Ph.D., Department of Psychiatry, Martha Storandt Ph.D., Department of Psychology, Daniel McKeel Jr., M.D., Department of Pathology, and Joseph L. Price Ph.D., Department of Anatomy and Neurobiology.

Not every person over the age of 65 who forgets an appointment or misplaces a pair of reading glasses should start worrying about Alzheimer's disease. "Occasional forgetfulness isn't necessarily a sign of disease," Morris says. "But if the memory loss represents a change in normal behavior, if it seems to get progressively worse, and if it interferes with everyday performance to the point that a spouse, family member or close friend notices it, then it may be a sign that something's wrong and that a visit to a neurologist or other physician familiar with the disease is in order."

Morris urges elderly persons to volunteer for research programs such as the Memory and Aging Project. "Only by charting the history and progress of SDAT, comparing those who are demented to those who are aging normally, and by examining the brains of both healthy people and people who have SDAT, will we ever truly understand this tragic disease."

Meanwhile, Morris — along with his colleagues at other research centers throughout the country — will continue to refine their interviewing and testing techniques in an effort to diagnose the disease in its earliest stages.

"It would be nice if we could diagnose very mild SDAT by simply giving everyone the same battery of standardized tests and saying, `You scored such and such, so you're demented; you scored such and such, so you're not,'" says Morris. "But it doesn't work that way. And it always comes back to that old dictum: no matter how high-tech medicine gets, first and foremost we have to pay attention to the patient."

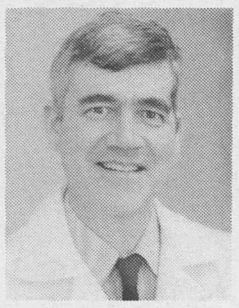
Tony DiMartino

Thach receives MERIT award for infant death research

Bradley T. Thach, M.D., professor of pediatrics at the School of Medicine, has received MERIT status from the National Institutes of Health (NIH) for his latest grant.

The five-year grant, totaling more than $740,000, will enable Thach to continue his research on the causes of Sudden Infant Death Syndrome (SIDS). The grant is from the National Institute of Child Health and Human Development, part of the NIH. MERIT (Method to Extend Research in Time) status guarantees Thach uninterrupted financial support without the time-consuming paperwork and other delays traditionally associated with grant renewal applications.

Researchers cannot apply for MERIT status, but are chosen in recognition of their superior achievement and commitment to excellence during previous research projects. Once received, a five-year grant with MERIT status may be extended an additional three to five years, based on an expedited review of work accomplished during the initial period.


Bradley T. Thach

"Dr. Thach's research has greatly increased our understanding of Sudden Infant Death Syndrome," says Chancellor William H. Danforth. "Much more remains to be learned, but Thach's work has led to important findings about the complex neuromuscular mechanisms that can contribute to SIDS."

Thach is a specialist in newborn medicine. His research focuses on the structure and function of the upper respiratory tract in infants, especially the reflexes and muscles that keep the upper airway open.

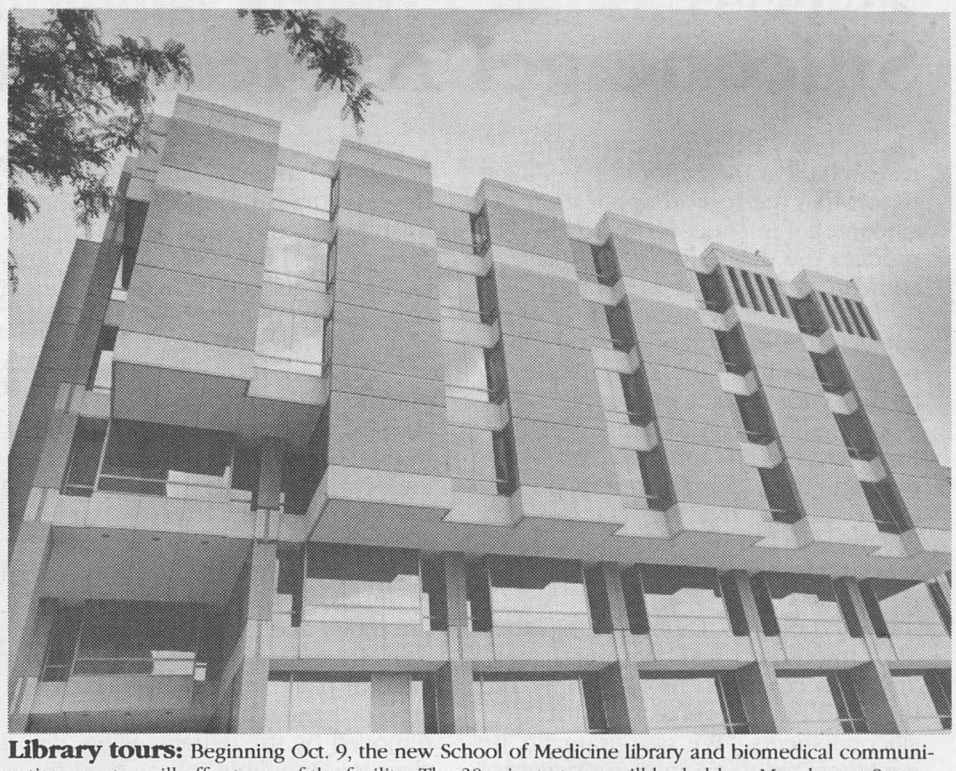
With this grant, Thach will examine the mechanisms involved in initiation and recovery from apnea, a pause in breathing that, if prolonged, causes hypoxia, a severe oxygen deficiency that can lead to death. Previous studies indicate that the inability to recover from attacks of apnea-induced hypoxia may play a role in SIDS.

Thach and his associates also will investigate how age affects the ability to recover from hypoxic apnea; spontaneous recovery from prolonged apnea by means of the gasping reflex; and regulation of the upper airway in infants during sleeping and feeding.

Thach received the doctor of medicine degree from Washington University in 1968. He has been on the School of Medicine faculty since 1976, and is on staff at Barnes, Jewish, and St. Louis Children's hospitals, sponsoring institutions of the Washington University Medical Center.

He is a member of numerous professional organizations, including the Missouri State Thoracic Society, the American Thoracic Society, the Society for Pediatric Research, the American Physiological Society, and the American Lung Association. He is on the program committee of the respiratory neurobiology and sleep section of the American Thoracic Society, and on the planning committee of the International Symposium on Sleep and Breathing. He also serves on the advisory board of Sudden Infant Death Syndrome Resources, Inc., and on the editorial board of the journal Pediatric Pulmonology.

Thach is author or co-author of more than 100 papers and abstracts on his research.

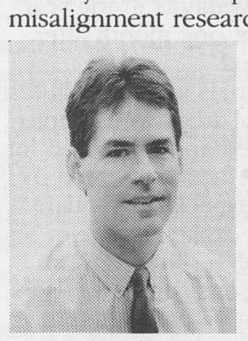

Library tours: Beginning Oct. 9, the new School of Medicine library and biomedical communications center will offer tours of the facility. The 30-minute tours will be held on Mondays at 9 a.m., Tuesdays at noon, Wednesdays at 10 a.m., Thursdays at 2 p.m. and Fridays at 11 a.m., or by appointment. The facility has been open since July 17. For more information, call the information service desk at 362-7085.

New pediatric ophthalmology director specializes in eye misalignment research

Lawrence Tychsen, M.D., has been named director of pediatric ophthalmology at the School of Medicine and St. Louis Children's Hospital.

The appointment was announced by Henry J. Kaplan, M.D., professor and head of the Department of Ophthalmology and Visual Sciences at the School of Medicine.

Tychsen is a specialist in eye misalignment research whose work has begun to unravel the cause of crossed eyes in infants. His investigations have shown that eye crossing in infants occurs because one area of the brain develops too slowly, not because the eye muscles are "lazy." Also, he has found that early eye muscle surgery in these infants appears to stimulate more normal brain development. This work has earned him one of the first career development awards from the Research to Prevent Blindness Foundation.


Lawrence Tychsen

At the School of Medicine, Tychsen is an assistant professor of ophthalmology and visual sciences, and of anatomy and neurobiology. He comes to the medical center from the School of Aerospace Medicine in San Antonio, Texas, where he served as a U.S. Air Force flight surgeon and specialist in aerospace ophthalmology.

A 1979 graduate of Georgetown University School of Medicine, he completed his training in eye surgery at University Hospitals in Iowa City, Iowa. He served fellowships in both pediatric and neuro-ophthalmology at the National Institutes of Health, the University of California San Francisco Medical Center and the Smith-Kettlewell Institute in San Francisco. He also completed a basic science fellowship in neurobiology at the University of California, San Francisco.

His work on eye alignment and the visual brain has been published in the Journal of Neuroscience, the Journal of Neurophysiology and the Annual Review of Neuroscience.

McClennan appointed to radiology board

Bruce L. McClennan, M.D., professor of radiology and head of abdominal imaging at the School of Medicine's Mallinckrodt Institute of Radiology, has been appointed to the board of chancellors of the American College of Radiology (ACR).

The board of chancellors is the governing body of the ACR, setting policy for the national organization on the advice of its elected council members.

There are more than 22,000 radiologists in the United States. Of those radiologists, only 24 of the recognized leaders in the field are appointed to this position, one of the most senior positions in the profession.

Ronald G. Evens, M.D., professor of radiology and director of Mallinckrodt, is also a chancellor of the ACR, making Mallinckrodt the only institution with two members receiving this honor.

McClennan also serves as chairman of ACR's Inter-Society Commission, a group of leaders from 41 radiological societies who meet and discuss critical issues in the field of radiology and make recommendations to the college at its annual meeting.

McClennan is nationally recognized for his work in research and assessment of new technology in the field of uroradiology. He has written more than 90 scientific journal articles, over 20 book chapters and syllabae and more than 20 scientific abstracts. He recently became president of the Society of Uroradiology.

Neurosurgery prize awarded to Heffner

A neurosurgery resident at the School of Medicine has won the 1989 Academy of Neurological Surgery Resident Prize for outstanding research.

Christopher D. Heffner, M.D., a fourth-year resident, received the award at the academy's annual meeting, held Sept. 27 - Oct. 1 in Tucson, Ariz. The academy presents the award each year to the resident who has submitted the most original and significant clinical or basic science research paper. Heffner received a $250 honorarium, an engraved certificate and expenses for attending the meeting, where he presented his research.

The work involves one of the central issues of developmental biology, how axons — projections of nerve cells that are responsible for transmitting impulses to other nerve cells — develop their connections to target structures. Specifically, Heffner investigated the cues that induce the branching and directional growth of mammalian cortical axons; that is, events that underlie target selection by these axons.

Heffner carried out this project with Dennis D.M. O'Leary, Ph.D., assistant professor of anatomy and neurobiology and of neurology and neurological surgery, as part of his residency training. Work in O'Leary's laboratory is supported by the McDonnell Center for Studies of Higher Brain Function and Center for Cellular and Molecular Neurobiology, and by grants from the National Institutes of Health, the National Eye Institute, and the McKnight and Sloan Foundations. A report of this work will appear in the journal Science; co-author with Heffner and O'Leary is Andrew G.S. Lumsden, Ph.D., of United Dental and Medical Schools in London.

Heffner received the doctor of medicine degree in 1985 from Washington University School of Medicine, and a bachelor of arts degree in 1982 from Brown University.

Gait/balance study needs volunteers

Researchers at the School of Medicine and Jewish Hospital are seeking volunteers for a study on gait and balance.

To be eligible, participants must be 65 years of age or older and have mobility problems such as falling, or difficulty climbing stairs or walking 10 blocks. They also must not be involved in a regular exercise or physical therapy program more than once a week.

Volunteers will receive a free evaluation of balance and gait by a geriatric physician and physical therapist as well as recommendations on how to minimize physical disability.

Principal investigator for the study is Stanley Birge, M.D., associate professor of medicine at the School of Medicine and clinical director of the Program on Aging at Jewish Hospital. Ellen Binder, M.D., instructor in medicine, and Marybeth Brown, Ph.D., assistant professor of physical therapy, will conduct the patient evaluations.

For more information, call the Program on Aging at 454-8150.

'Dramatic, unequivocal response'

Silicone gel reduces scarring in burn patients

Though they don't yet know why, researchers at the School of Medicine report that the topical application of silicone gel in sheet form effectively reduces the disfiguring scars that sometimes form after burns heal.

In the first controlled study of the subject, investigators measured improvements in all the scars they treated with small sheets of silicone gel. Scars in the study ranged in age from two months to four years with no significant difference in response to the silicone dressing. The material is similar to but of a different consistency than that used in surgical implants.

According to Thomas A. Mustoe, M.D., the raised scars became flatter, lighter in color and more flexible after they had been covered with the silicone sheets. "We saw dramatic, unequivocal response in some patients," Mustoe says. The raised scars, called hypertrophic scars, are often red, inelastic and can limit movement. They usually appear a few weeks after healing and may continue to mature for two years or more.

. . . The raised scars became flatter, lighter in color and more flexible after they had been covered with the silicone sheets.

Mustoe, an associate professor of surgery in the plastic surgery division, says no one knows what causes them. Because animal models do not exist — only humans develop hypertrophic scars — there have been difficulties in gaining an understanding.

According to William W. Monafo, M.D., professor of surgery and a member of the research team, hypertrophic scarring is "quixotic," neither predictable nor preventable. They are most severe, he says, among children and dark-skinned people and can result from deep wounds or incisions as well as burns. Monafo, who was director of the burn unit at Washington University during the time of the trials, explains that the scars sometimes resolve themselves, but in burn cases that is more the exception than the rule. The new therapy promises to greatly speed resolution of such scars and may also be important in preventing them.

The conventional treatment for the thick, red scars has been pressure, usually supplied by an elastic garment that often had to be worn for nine months or more. Such suits are hot, uncomfortable and difficult to fit to some parts of the body, especially joints. The response only is unpredictable, since no controlled study has been done, Mustoe says.

Mustoe first learned of the silicone gel alternative during a 1986 visit to a Glasgow, Scotland, plastic surgery department. Researchers working with the material there got their supply from the same company Mustoe was collaborating with in the United States on an unrelated project. He calls his discovery "pure serendipity" and still does not know what first gave doctors in New Zealand and the British Isles the idea to employ silicone in scar therapy. Reports of work from those two countries has not included a controlled study.

Silicone gel differs from recently developed artificial skins that are designed to aid in the resurfacing of fresh burns and serve as a substitute for skin until the real thing can grow back. The gel is effective for reducing scars that form after healing is complete, Mustoe explains.

The pilot research by Mustoe, Monafo and Sang Tae Ahn, M.D., a surgical fellow, published October 4 in the journal Surgery, relates experiences with 14 scars in 10 patients. Of the 14, a total of 11 were covered for 12 hours or more each day with sheets of silicone gel about one-eighth of an inch thick. The gel is tacky to the touch and as flexible as human skin, so it does not restrict movement. Held in place with gauze, adhesive tape or bandages, the sheets were removed by the patients every day for cleaning. Indelible ink marked the outlines of the scar areas to be covered, each about two-and-a-half by three inches. Similarly sized scar tissue adjacent to the covered areas or on anatomically paired regions served as the controls. All scars treated showed significant improvement after eight weeks of testing.

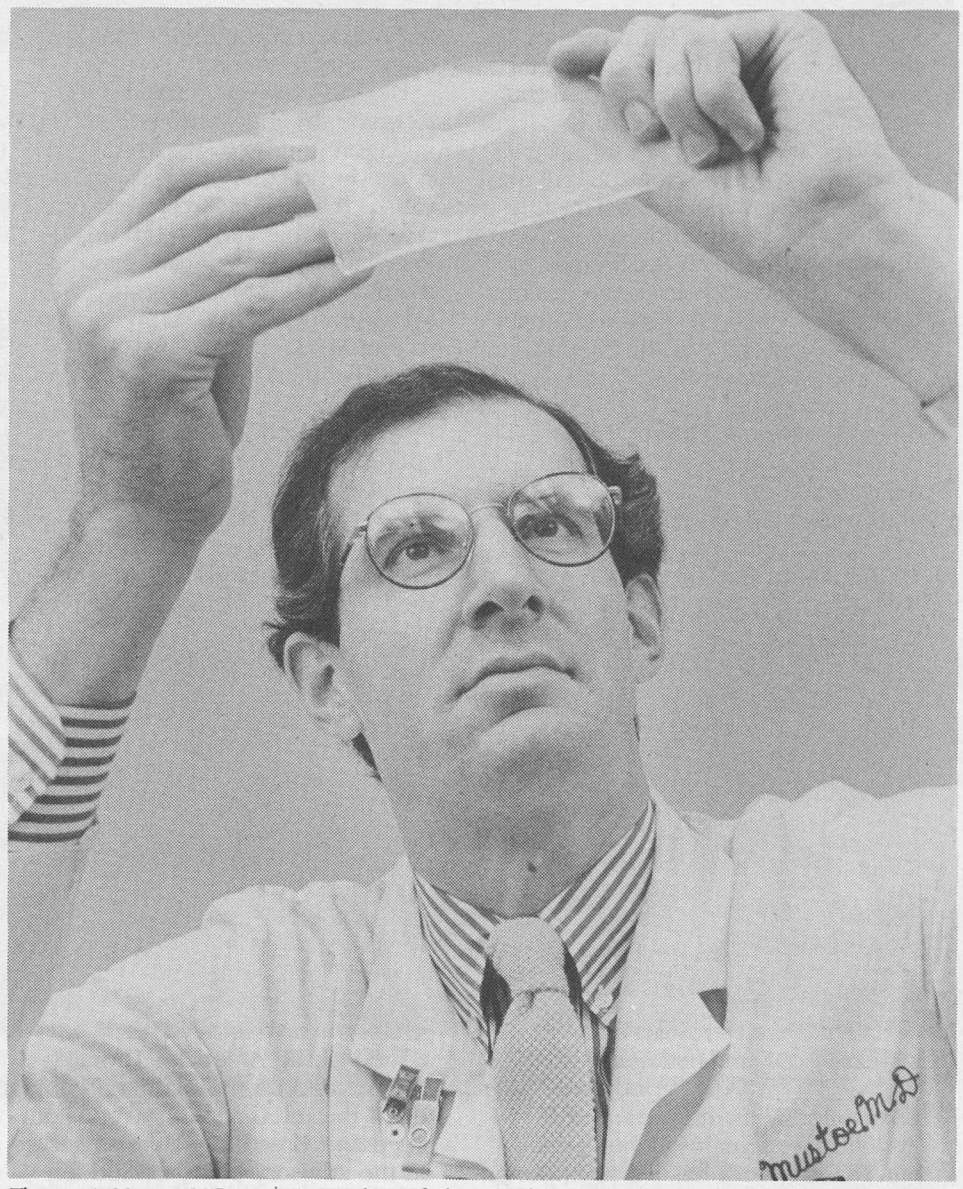
In one dramatic example of the therapy's efficacy, a 33-year-old man was treated for a thick red and tender burn scar that limited the extension of his neck. After part of the scar was covered for eight weeks with the silicone gel sheeting, it was flatter, lighter and thinner. Elastometric measurements that gauged the scar tissue's flexibility nearly doubled. And all of the improvements in the scar were still present one month after treatment stopped.

Before the trials began, both test scars and control areas were photographed, biopsied and measured for flexibility with a device adapted by team members especially to quantify the elastometric capacity of skin. The hand-held gauge applies constant tension to two points 10 millimeters apart, then registers the stretch in hundredths of a millimeter. Elasticity increased in all but one of the scars measured. Scar elasticity averaged about 12 percent in pre-treatment measurements and rose to roughly 18 percent one month after treatment was stopped. Normal skin displays elastometric values of 30 to 42 percent. The control scars showed no change. Clinical appearance was similarly improved, in some cases dramatically.

Because of the increase in elasticity achieved, Mustoe says the therapy may have special importance for treating scars of the fingers, hand, wrist and anywhere such tissue restricts movement. Additionally, Monafo points out that the treatment holds promise for reducing the substantial cosmetic and psychological morbidity associated with hypertrophic scarring.

"Scars that improved in elasticity also improved in appearance," Mustoe notes. Both patients and researchers evaluated clinical changes at four and eight weeks. They judged five additional criteria: texture, color, thickness, durability and pruritis, or itching. If four items had been noted as consequential before treatment and three improved, then the scar was scored 3/4.

Scores ranged from 1/3 to 6/6, with seven of the scars getting the highest score possible. The three scars that patients treated for less than half a day did not show clinical improvement, nor did any of the control areas.



Thomas A. Mustoe, M.D., examines a sheet of silicone gel. He and colleagues recently have published a study that shows the substance helps reduce disfiguring scars that sometimes form after burns heal. The study appeared in the Oct. 4 issue of the journal Surgery.

Measuring scar thickness reliably proved to be impossible for technical reasons, but examination of the biopsies before and after treatment revealed no inflammation or foreign-body reactions. Mustoe says the investigators determined that silicone was not bleeding into the tissue. Side effects included only a rash, itching and three instances in which the scars beneath the sheets softened. All of the side effects were alleviated by briefly removing the gel sheet.

The age of a scar had no measurable impact on the treatment's effectiveness. Location of the scar and age of the patient also had no effect, though Mustoe says larger samples in future trials will be required to identify the groups that benefit most.

The silicone is biologically inert, neither promoting nor retarding microbial growth. Because the basic material already has been approved for use inside the body by the Federal Food and Drug Administration, Mustoe expects this scar-therapy application to be generally available without the delay common in bringing new medical treatments to patients.

Mustoe acknowledges that the number of subjects in the pilot study is small. "But the results are encouraging, nonetheless," he says. Many of the questions raised by the first research are now under investigation, and early results suggest that a treatment of two months' duration seems all that is necessary to produce persistent improvement. The researchers hope to learn when in the lives of both scar and patient the treatment is most effective. Mustoe would also like to know whether the application of the gel shortly following the healing of a burn or a wound can prevent the later development of hypertrophic scarring. The extent to which motion can be restored to scarred joints requires exploration, and Monafo points out that the team has yet to try the approach on an extensive portion of the body.

. . . Early results suggest that a treatment of two months' duration seems all that is necessary to produce persistent improvement.

Perhaps most important, the collaborators would like to discern the process by which silicone gel works its therapeutic effect. With pressure and chemical interaction ruled out as the cause, Mustoe imagines that the response may be related to the gel's characteristic of permitting the transmission of water at about half the rate of skin.

Monafo has yet to be convinced but would also like to identify the process. "I'm a little sheepish about this because we just don't know how it works. But we've been very careful to control our observations, and it does work," he says. "It is exciting because once we figure out why silicone has this effect, it may help to plan experiments that elucidate the biological basis of hypertrophic scarring."

Steve Kohler

PERSONNEL NEWS

Health insurance plans are summarized

The open enrollment period that begins in mid-October again provides eligible members of the Washington University community the opportunity to select health insurance coverage suited to their needs. Summarized below are key provisions of the plans offered. Carriers of the several plans will hold meetings to answer individual questions.

Blue Cross-Blue Shield

The following is a summary of covered services and supplies. For inpatient hospital care, physician care and outpatient hospital care, 100 percent benefits are paid when Alliance Providers are used.* When non-Alliance Providers are used, 80 percent benefits are paid for these services after the $200 calendar year deductible. There is a $1,000,000 maximum benefit.

After the deductible, 80 percent benefits are paid for the following: prescription drugs, skilled nursing facility care, ambulance service, private-duty nursing, durable medical equipment and prosthetic appliances. *Exception: There is a $10 fee for care received in the physician's office and a $25 fee for emergency room care. These fees are waived for accidental injuries, outpatient same-day surgery and pre-admission testing.

TIAA Major Medical plan*

After a $300 deductible, 80 percent benefits are paid. The covered services include: inpatient hospital care; physician care; outpatient care; private duty nursing, prescription drugs, local ambulance service, and miscellaneous charges (prosthetic appliances, durable medical equipment, etc.).

There is a cash deductible of $300 with 80 percent reimbursement for the first $10,000 of covered charges. Then 100 percent after that to $1,000,000 maximum benefit.

*NOTE: TIAA will not offer health insurance plans after November 1990. Individuals enrolled in the TIAA Major Medical plans will need to select another option in 1990 for the plan year that begins Dec. 1, 1990.

TIAA representatives will hold a special meeting for retirees who are covered by major medical insurance. Information about the meeting will be mailed to each retiree.

Partners HMO

All services must be provided by, or under the direction of, a Partners HMO plan physician. The covered charges include: inpatient hospital care; outpatient hospital care; physician care (with $5 co-payment for certain types of office visits); maternity care; emergency care (with $25 co-payment per visit to hospital emergency room); mental health and chemical dependency services (outpatient treatment is subject to co-payment); prosthetic devices and durable medical equipment (with 20 percent co-payment); and prescription drugs ($4 co-payment).

Group Health Plan (GHP)

Most medical and hospital care is covered fully by Group Health Plan when provided by, arranged for or authorized by a GHP physician.

The covered charges include: inpatient hospital care; outpatient care; physician care; maternity care (with $50 co-payment per visit); dental care (routine only, with a $5 co-payment per visit); home health care; mental health care; alcohol and drug abuse care; and prescription drug ($5 co-payment).

Teacher's insurance association led industry in total and net return rates

The Teachers Insurance and Annuity Association (TIAA) led the industry in several key areas for 1988 when compared to the dozen largest U.S. life insurers. Last year, TIAA ranked number one in:

- Its 11.12 percent total rate of return (including capital gains and losses) on invested assets.
- Its 10.70 percent net rate of return (not including capital gains and losses) on invested assets. The net rate of return has been the more traditional way of evaluating investment performance within the industry. TIAA has maintained the lead position in this category for nine of the past 10 years. When compared to the industry average of 9.37 percent (as estimated by The American Council of Life Insurance), TIAA's 10.70 percent net rate of return translated into additional earnings of $453 million in 1988. Last year was the 40th consecutive year that TIAA's investment performance surpassed that of the industry average.

TIAA invests an average of about $30 million every business day. Its diversified investment portfolio includes mortgages, direct placement loans, real estate equity and publicly traded bonds.

TIAA annuities guarantee a minimum rate of interest during the accumulation stage and a minimum level of income during the payout years. Earnings from TIAA's investments, beyond what is needed to fulfill the guarantee and to provide reserves for contingencies, are available for dividends — that is, as additional interest above the guarantee. The actual amount of dividends credited is determined by TIAA's board of trustees on a year-by-year basis. (During the payout years, dividends reflect both investment experience and a gradual return of the unused portion of the contingency reserves.)

1989 investments

TIAA will acquire about $8 billion in new investments. TIAA had already invested about $3.8 billion by the end of June. Of this amount, $857 million was invested in mortgages, $799 million in real estate equity, $628 million in direct placements, and $1.5 billion was invested in publicly traded bonds. TIAA will invest the balance of about $4 billion during the second half of the year.

Social Security offers statements

To help you plan your financial future, the Social Security Administration now offers a free statement that shows your Social Security earnings history, tells you how much you have paid in Social Security taxes, estimates your future Social Security benefits, and provides some general information about how the program works.

Request forms are available in the Personnel Office, Room 126 North Brookings Hall (889-5990) or from your local Social Security office.

Market-based interest rate now available with Series EE U.S. Savings Bonds

Series EE U.S. Savings Bonds allow everyone to receive the competitive, market-based interest rates once available only to those with a lot of money to invest. When you hold an EE Bond five years or longer, you earn a rate based on the average return of five-year marketable Treasury securities costing $1,000 or more. Yet your cost to start buying bonds is as little as the smallest payroll allotment provided by your employer.

The resulting return can be significant. How high that may be depends on future market performance, but bond owners receive a guaranteed minimum rate set at the time of purchase when they hold their bonds at least five years. Bonds redeemed sooner receive reduced yields.

You can easily track the progress of the market-based rate for your bonds. Each May and November the Treasury Department announces the market-based rate for interest periods beginning in the following six months. This rate is based on 85 percent of the average return on five-year Treasury marketable securities during the previous six months, along with the market-based averages logged by bonds issued previously.

When a bond has been held five or more years, the market-based average applied to it is rounded to the nearest quarter percent and compounded semiannually to determine its yield and redemption value.

To learn the current minimum rate and maturity on new bonds, call, toll-free, 1-800-US BONDS.

Financial passport

Registration: There's more to the Series EE Bond than interest — and more is better. Like a passport, EE Bonds are personalized. They can be registered in three ways: single ownership form, in the name of one person; Co-ownership form, with two persons as co-owners; or beneficiary form, with one person as owner and another as beneficiary.

No more than two people can be named on any one bond. However, many employers allow multiple allotments for bonds with differing inscriptions. In all cases, owners or first-named co-owners must provide their Social Security numbers for inscription onto the bonds.

Denominations: Payroll savers choose from a number of denominations, each costing one-half its face value. Prices start at just $50 for the $100 denomination. Other denominations (and cost prices) are: $200 ($100), $500($250), $1,000($500), $5,000($2,500), and $10,000($5,000).

Taxes: A passport that reduces your tax bill? The interest earned on EE Bonds is exempt from state and local income taxes, and federal tax reporting may be deferred until redemption or final maturity, whichever is first.

Safety: As registered obligations of the United States, savings bonds are as safe as any security can be. Principal and interest are backed by the full faith and credit of the United States. If your bonds are lost, stolen or destroyed, you can apply for free replacement by writing to the Bureau of the Public Debt, Bond Consultant Branch, Parkersburg, WV 26106-1328.

Redemption: Savings bonds may be redeemed, without fee or commission, at any time after six months from issue date. Redemption agents include most commercial banks and many other financial institutions throughout the United States.

Maturity: Series EE Bonds issued since November 1986 are issued for a term of 12 years, representing the length of guaranteed interest earnings. Older EE Bonds have different maturities. The Treasury Department has the option of extending the interest-bearing life of a savings bond beyond original maturity.

Older bonds and notes: All Series E and EE Bonds and Savings Notes (Freedom Shares) issued before November 1982 also earn market-based interest or previous guaranteed rate, if more. Series E Bonds originally issued in the 1940s reach final maturity, and stop earning interest, when they are 40 years old. These bonds should then be redeemed, or they may be exchanged for Series HH Bonds. HH Bonds pay current income to owners. To continue the tax-deferral privilege, E Bonds must be exchanged for HH Bonds within a year of their final maturity dates. The minimum HH Bond investment is $500.

Bankruptcy: a remedy of last resort

There are many pitfalls when declaring bankruptcy. Don't be fooled by TV commercials that promote bankruptcy as the answer to your financial problems. It is a remedy of last resort with long-term consequences.

Did you know that after bankruptcy you still owe money? All bankruptcy does is prevent the creditor from collecting. You still pay your mortgage, taxes, alimony and child support. You'll possibly lose your car as well.

Bankruptcy does not give you a fresh start — quite the contrary. It becomes extremely difficult to get a loan after bankruptcy even if you try to buy a home. That's because the information remains in your credit file for up to seven years and is viewed by all creditors.

Many people are confused by the term "Chapter 13." A "Chapter 13" filing is indeed a bankruptcy. It is sometimes referred to as a "debt reorganization" or "wage earner" plan. Chapter 13 is a bankruptcy and carries the same stigma as a Chapter 7 filing.

The loans you obtain from St. Louis Teachers Credit Union represent your co-workers' savings. If you default on a loan as a result of bankruptcy, SLTCU charges your loan off as a bad debt. This affects the credit union's earnings. Ultimately, all members are penalized by higher loan rates and lower dividends.

Bankruptcy is not an easy way out. It can be traumatic and embarrassing, and ultimately affects your fellow members. The St. Louis Teachers Credit Union invites you to let them help you find an alternative to bankruptcy.

Personnel News

Personnel News appears monthly in the Record and is prepared by Gloria W. White, vice chancellor for personnel and affirmative action, and other members of the Personnel Office. Personnel News is designed to keep Washington University employees and their families informed of the benefits and opportunities available at the University.

CALENDAR

Oct. 5-14

LECTURES

Thursday, Oct. 5

9:30 a.m. School of Medicine Second Annual Eduardo Slatopolsky Lecture, "Sodium and Water Retention in Low and High Cardiac Output Failure, Cirrhosis, Pregnancy and Nephrotic Syndrome: A Unifying Hypothesis," Robert W. Schrier, prof. and chair, Dept. of Medicine, U. of Colorado, Denver. Clopton Aud., ground floor, Wohl Clinic Bldg., 4950 Audubon.

4 p.m. Dept. of Earth and Planetary Sciences Colloquium, "Large-scale Element Mobility During Metamorphism and Anatexis: Field, Geochemical and Petrological Studies," Stephen Wickham, asst. prof., Dept. of Geophysics, U. of Chicago. 102 Wilson Hall.

Friday, Oct. 6

8:15 a.m.-4:45 p.m. AIDS Clinical Trials Unit at WU School of Medicine Symposium, "Care of the Person With HIV Infection and AIDS." Sheraton West Port Inn, 191 West Port Plaza. Cost: $45 for physicians; $30 for allied health professionals. To register or for more info., call 362-2418.

3 p.m. Dept. of Earth and Planetary Sciences Colloquium, "Is Triton Dead? Voyager 2 Evidence," Joseph Veverka, prof., Dept. of Astronomy, Cornell U. 102 Wilson Hall.

4 p.m. Dept. of Music Lecture, "Performing Schubert on the Viennese Fortepiano," Seth Carlin, WU prof. of music. 8 Blewett B. For more info., call 889-5581.

6 and 8:30 p.m. WU Association Travel Lecture Series, "Brittany and Normandy — England's French Connection," Frank Mugno, award-winning photographer. Graham Chapel. For ticket info., call 889-5122.

Monday, Oct. 9

4 p.m. Assembly Series and Dept. of English Lecture, "Reading From Current Work," John Barth, author, *The Tidewater Tales: A Novel.* Brown Hall Lounge. For more info., call 889-4620.

7 p.m. Dept. of Education Colloquium, "Action Research and Critical Ethnography: Epistemological and Ethical Issues," John Codd, Massey U., Palmerston North, New Zealand. 217 McMillan Hall.

Tuesday, Oct. 10

9 a.m.-5 p.m. Center for the Study of Data Processing ShowCASE Conference IV, to examine automation in data processing. Adams Mark Hotel, 4th and Chestnut. For more info., call 889-4556.

Wednesday, Oct. 11

12:10 p.m. Gallery of Art Noon Gallery Talk, "Master Drawings From the Nelson Atkins Museum," Mark S. Weil, prof., WU Dept. of Art History and Archaeology. Gallery of Art, Steinberg Hall, lower level. For more info., call 889-4523.

4 p.m. Dept. of Physics Colloquium, "The Superconductor Vacuum," Christopher Hill, Fermilab. 204 Crow Hall.

Thursday, Oct. 12

Noon. Dept. of Genetics Fall Seminar, "Locus of Hematopoietic Serine Proteases on Human Chromosome 14Q11," Timothy J. Ley, WU asst. prof. of medicine. 816 McDonnell Medical Sciences Bldg.

4:15 p.m. Dept. of Philosophy Colloquium, "A Study in Comparative Semantics," Ernest LePore, prof., Rutgers State U. of New Jersey. Hurst Lounge, Duncker Hall.

PERFORMANCES

Thursday, Oct. 5

8 p.m. Performing Arts Dept. Presents "A Slight Ache." (Also Fri., Sat. and Sun., Oct. 6-8, same time, and Sun. matinee at 2 p.m.) Mallinckrodt Center Drama Studio, Room 208. Cost: general public $3; $2 for students, senior citizens and WU faculty and staff. For more info., call 889-6543.

Friday, Oct. 6

8 p.m. Edison Theatre Presents National Theatre of the Deaf, "The Odyssey." (Also Sat., Oct. 7, same time.) Edison Theatre. Tickets: general public $16; senior citizens and WU faculty and staff $12; students $8. Following both performances, the public is invited to meet with the artists. For more info., call 889-6543.

Saturday, Oct. 7

2 p.m. Edison Theatre Presents "ovations! for young people," featuring Little Theatre of the Deaf. Edison Theatre. All tickets $7. For more info., call 889-6543.

Friday, Oct. 13

8 p.m. Edison Theatre Presents Showcase Performances of Regional Dance Companies, including State Ballet of Missouri, Omaha Ballet and Burning Feet Dance. (Also Sat., Oct. 14, at 8 p.m.) Edison Theatre. Tickets: general public $8; $5 for students and senior citizens. Performances are in conjunction with Mid-America Dance Network's 10th anniversary conference, "Looking Back and Dancing On," held at WU Oct. 13-15 and co-sponsored by Performing Arts Department. For more info., call 889-5858.

MUSIC

Sunday, Oct. 8

2:30 p.m. Dept. of Music Presents WU Wind Ensemble Concert, featuring The St. Louis Brass Ensemble. St. Louis Art Museum Theatre. For more info., call 889-5581.

EXHIBITIONS

"Washington University Permanent Collection." Collection includes European and American art from the post-World War II era, as well as Greek coins and terra cotta vases. Through Dec. 31. Gallery of Art, Steinberg Hall, upper and lower galleries. 10 a.m.-5 p.m. weekdays; 1-5 p.m. weekends. For more info., call 889-4523.

"Master Drawings From the Nelson-Atkins Museum." Through Dec. 3. Gallery of Art, Steinberg Hall, lower gallery. 10 a.m.-5 p.m. weekdays; 1-5 p.m. weekends. For more info., call 889-4523.

"Fulfilling the Page: Modern Poetry Broadsides." Through Oct. 13. Olin Library, Special Collections. 8:30 a.m.-5 p.m. weekdays. For more info., call 889-5495.

"Four Alumni Illustrators," featuring recent works by WU alumni Bobbye Cochran, Mike Peters, Bill Vann and Jack Unruh. Through Oct. 15. Bixby Gallery, 2nd floor, Bixby Hall. 10 a.m.-4 p.m. weekdays; 1-5 p.m. weekends. For more info., call 889-4643.

FILMS

Thursday, Oct. 5

6:30 and 9:30 p.m. Filmboard Series, "Don Quixote de la Mancha." $2. Brown Hall.

Friday, Oct. 6

7:30 and 10 p.m. Filmboard Series, "Sudden Impact." (Also Sat., Oct. 7, same times, and Sun., Oct. 8, at 7 p.m.) $2. Brown Hall.

Midnight. Filmboard Series, "Dirty Harry." (Also Sat., Oct. 7, same time, and Sun., Oct. 8, at 9 p.m.) $2. Brown Hall. On Fri. and Sat., both the 10 p.m. and midnight films can be seen for a double feature price of $3; both Sun. films can be seen for $3.

Monday, Oct. 9

7 and 9:30 p.m. Filmboard Series, "Shane." (Also Tues., Oct. 10, same times.) $2. Brown Hall.

Wednesday, Oct. 11

7 and 9 p.m. Filmboard Series, "Kanal." (Also Thurs., Oct. 12, same times.) $2. Brown Hall.

Friday, Oct. 13

7 and 9:30 p.m. Filmboard Series, "Shoot to Kill." (Also Sat., Oct. 14, same times, and Sun., Oct. 15, at 7 p.m.) $2. Brown Hall.

Midnight. Filmboard Series, "Diamonds are Forever." (Also Sat., Oct. 14, same time, and Sun., Oct. 15, at 9:30 p.m.) $2. Brown Hall. On Fri. and Sat., both the 9:30 p.m. and midnight films can be seen for a double feature price of $3; both Sun. films can be seen for $3.

SPORTS

Friday, Oct. 6

3:30 p.m. Women's Tennis. WU vs. Elmhurst College. Tao Tennis Center.

Saturday, Oct. 7

1:30 p.m. Men's Soccer. WU vs. Brandeis U. Francis Field.

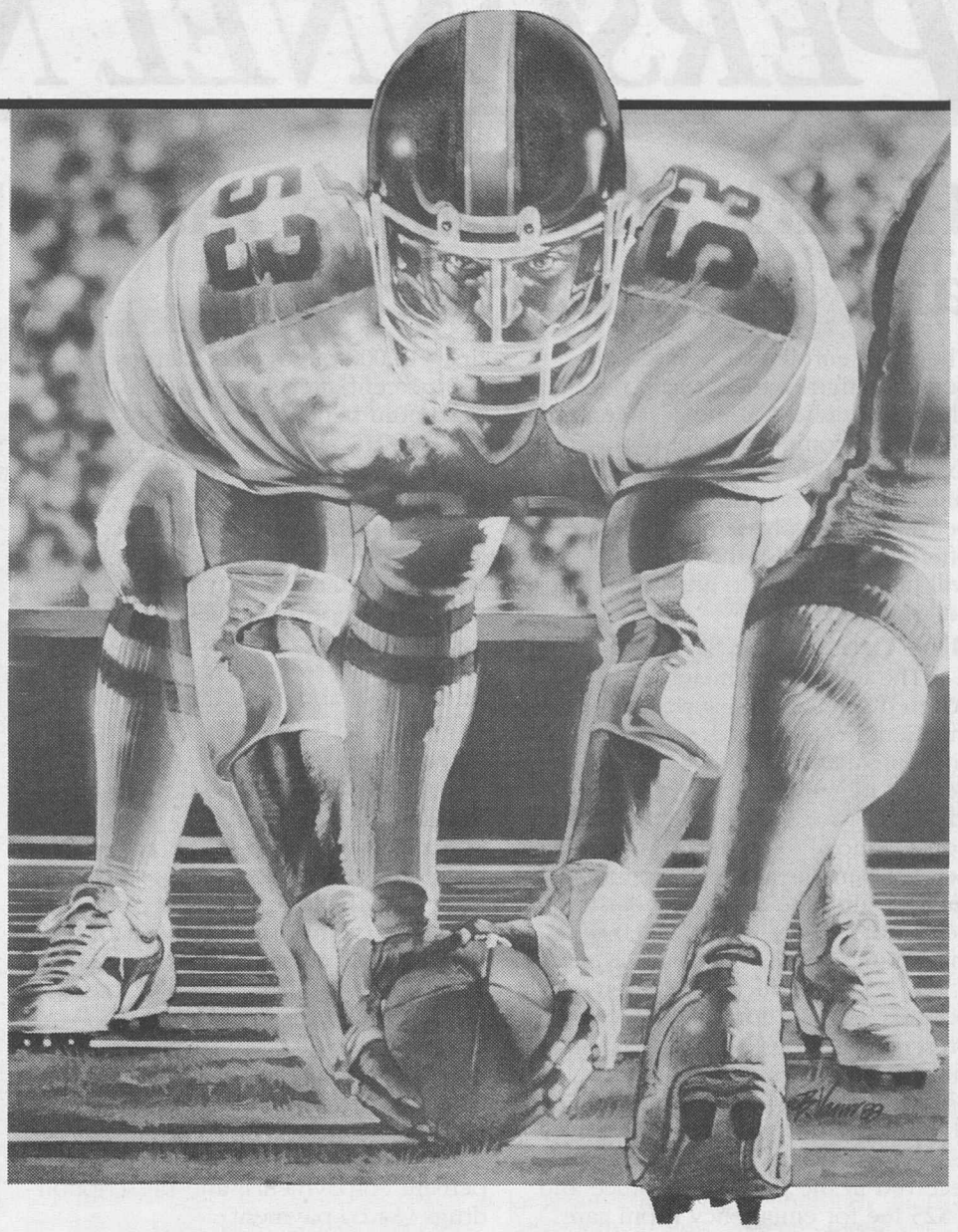
7 p.m. Football. WU vs. Central Methodist College. Francis Field.

Saturday, Oct. 14

Noon. Men's and Women's Cross Country. WU/Army ROTC Invitational. Forest Park.

1 p.m. Men's Soccer. WU vs. Carnegie Mellon U. Francis Field.

7 p.m. Football. WU vs. Rhodes College. Francis Field.



Illustrious Illustrators: "The Center," a poster by 1962 graduate Bill Vann that was commissioned by the National Football League, is one of many illustrations on display in Bixby Gallery, second floor, Bixby Hall. The exhibit, titled "Four Alumni Illustrators," features recent work by Vann, Bobbye Cochran, Mike Peters and Jack Unruh, four graduates of the School of Fine Arts. The show runs through Oct. 15. The gallery is open from 10 a.m. to 4 p.m. weekdays and from 1 to 5 p.m. weekends. For more information, call 889-4643.

MISCELLANY

Thursday, Oct. 5

9:30-11 a.m. University College Short Course, "Landscapes to Lassos: The Art of the American West," Joni L. Kinsey, WU adjunct asst. prof. in art history. Five Thursdays through Nov. 2. Cost: $75. To register or for more info., call 889-6788.

9:30-11 a.m. Washington University Career Panel, "International Careers for the 90s — A Day of Information and Opportunity for Students," panel discussion and information session about international careers for students. Second session from 3-5 p.m. Sponsored by Career Planning and Placement, Dept. of Germanic Languages and Literatures, Dept. of Romance Languages and Literatures and College of Arts and Sciences. Lambert Lounge, Mallinckrodt. For more info., call 889-5173.

4:30-6 p.m. Campus Y Class, "Intermediate Sign Language." Seven Thursdays. Campus Y, basement, Umrath Hall. Cost: WU students $30; non-students $38. To register or for more info., call 889-5010.

6:30-8 p.m. Campus Y Class, "Chinese Cooking." Seven Thursdays. Campus Y, basement, Umrath Hall. Cost: WU students $30; non-students $38. An additional $15 fee to cover cost of food is due at first class. To register or for more info., call 889-5010.

9 p.m.-1 a.m. Homecoming Night at the Gargoyle/Rat.

Friday, Oct. 6

6 p.m. Hillel/Reform Havurah Shabbat Dinner and Storyteller, "Jewish Tales," Annette Harrison, master storyteller. West private dining room, Wohl Center. Free; bring own meal. For more info., call 726-6177.

Saturday, Oct. 7

1:30-3:30 p.m. Homecoming Parade. Leaves Athletic Complex parking lot and proceeds as follows: Forsyth west to Big Bend, Big Bend north to Delmar, Delmar east to Skinker, Skinker south to Forsyth, west on Forsyth, back to parking lot. Tailgate party and pep rally from 4-6:45 p.m., Athletic Complex lot; Homecoming football game at 7 p.m., Francis Field; fireworks at 9:30 p.m.; "Big Beach Party" dance from 9:30 p.m.-1 a.m., Mudd Law Field. For more info., call 889-5994.

Monday, Oct. 9

Noon. Society of Professors Emeriti Executive Council Luncheon Meeting. Program at 1:30 p.m., "Computers in the Practice of Medicine," Jerome Cox, WU Welge Professor of Computer Science. Whittemore House. For more info., call 821-5054.

Calendar Deadline

The deadline to submit items for Oct. 26-Nov. 4 calendar of the Washington University Record is Oct. 13. Items must be typed and state time, date, place, nature of event, sponsor and admission cost. Incomplete items will not be printed. If available, include speaker's name and identification and the title of the event; also include your name and telephone number. Send items to S. Paige Patterson, calendar editor, Box 1070, or by electronic mail to p72245JW at WUVMC.

Dance conference — *continued from p. 1*

the children's dance program at the University.

The Saturday performance will include appearances by the Ballet Omaha, Mid-America Dance Company (MADCO) and Patrick Suzeau.

Ballet Omaha was founded in 1965. The only professional dance company in Nebraska, their current artistic director is Robert Vickery, previous director of the Connecticut Ballet and dancer with the Joffrey Ballet. MADCO will present its work titled "Tensor," which includes a sculpture by local artist Leila Daw and costumes by local designer Bonnie Kruger. Suzeau is familiar to St. Louis audiences since his residency last year in Washington's Performing Arts Department.

Tickets to the evening performances are $8; $5 for students and senior citizens. The cost of the entire conference, including the showcase performances, is $40 for MADN members and $60 for non-members. For more information, call 889-5858.